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Typosyllis papillosus, a new species (Annelida: Polychaeta: Syllidae) from the southwest Gulf of Mexico

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Abstract.—A new species of syllid polychaete, *Typosyllis papillosus,* is described from oil platforms in the Campeche Sound, southwestern Gulf of Mexico. The species is distinguished from other *Typosyllis* species by the following features: unique composite heterogomph falcigers bearing blades with bidentate tips with distal tooth larger than subdistal and rounded and proximal part of proboscis subdivided into ten regions, each of which with ten longitudinal rows of five or six rounded to triangular papillae. The species is closely related to *T. typica* (Moore, 1909) due to the presence of similar chaetae in both; nevertheless, no superior composite heterogomph falcigers with long blades and coarse basal serrations are present in the latter, and *T. typica* lacks the ten groups of rounded papillae distributed along the pharyngeal basal area in *T. papillosus.*

Syllids constitute one of the most diverse and widely distributed families of polychaetes. Usually free-living, they are very common in shallow waters, inhabiting soft sediments, coralline and algal substrates and being particularly abundant in cryptic environments of reef areas. The family, which was established for six genera and 15 species, is now represented by 66 genera and 819 species (Glasby et al. 2000), and these numbers increase constantly. Syllids are taxonomically a complex group, and the prospect of reaching a satisfactory and plausible taxonomic arrangement for the whole family will probably be attainable only in the long term, after standardization of procedures to describe them accurately (Kudenov & Harris 1995). A synopsis of the majority of syllid genera is presented by Fauchald (1977), whereas an abstract of the systematic history, taxonomy and biology of the family can be found in Uebelacker (1984), and more recently in Kudenov & Harris (1995), Fauchald & Rouse (1997), Licher (1999) and Glasby et al. (2000).

Campeche Sound, in the southwestern Gulf of Mexico, is an important area of oil extraction activity and regional fisheries in the coastal zone of Mexico; however, the benthic fauna is poorly known. Regional surveys were undertaken to study the fauna of the area surrounding the offshore oil platforms. Part of the research on the extensive polychaete collections made during these studies has already been presented in Granados-Barba & Solís-Weiss (1994, 1997a, 1997b, 1998). Previous taxonomic reports on other polychaetes collected during these studies include Solís-Weiss et al. (1994, 1995).

Syllids found throughout the continental shelf of the northern Gulf of Mexico comprise the family with the highest number of species of all recognized polychaete families (Uebelacker & Johnson 1984). In the southern Gulf of Mexico, syllids are particularly common in areas of carbonate sedi-

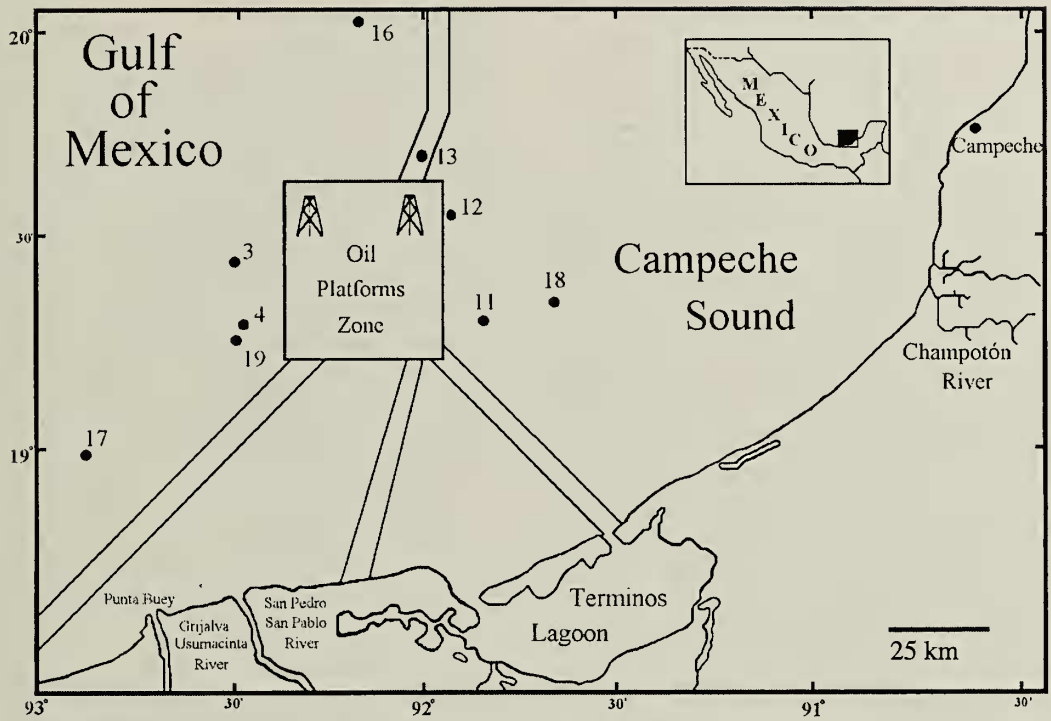

Fig. 1. Map of the study area around oil platforms: • Sampling stations.

ments (biogenic), especially those of the Campeche Bank (36 species at least), while in the predominantly terrigenous sediments (deltaic) surrounding the offshore oil platforms, they are rare (three species).

The sampling area is located in the Campeche Sound, between 18°46′ 20°03′N and 91°33′ 92°34′W, in an offshore area wth oil platforms, situated on the continental shelf down to about 200 m. The zone is characterized by continental waters and strong oceanographic dynamic processes due to seasonal changes (Monreal-Gómez & Salas de León 1990). The sediment in the area is mostly mud with some isolated patches of sandy mud.

Table 1.—Positions and depths of sampling stations.

Station	Latitude (N)	Longitude (W)	Depth (m)
3	19°18′	92°28′	102.6
4	19°15′	92°28′	71.8
11	19°20′	91°49′	32.4
12	19°33′	91°54′	56
13	19°42′	92°00′	70.2
16	20°03′	92°09′	127.2
17	18°59.1′	92°51.6′	75
18	19°20.3′	91°39.4′	29
19	20°57.9′	91°03.9′	28

Materials and Methods

Sampling was done on board the R/V *Justo Sierra,* as part of the projects IMCA-DINAMO in Sep 1988 (IMCA-2), Mar 1989 (IMCA-3), Sep–Oct 1989 (IMCA-4), Mar 1990 (DINAMO-1) and Oct–Nov 1990 (DINAMO-2). Syllids from nine stations are herein considered (Fig. 1, Table 1). Samples were collected with a 0.1 m^2 Smith-McIntyre grab, screened on a 0.5 mm sieve, fixed in 10% formaldehyde, and subsequently washed and transferred to 70% ethanol. Depth, salinity, and temperature were recorded at each station with a Niels Brown Conductivity Temperature Depth (CTD) probe. Environmental factors are described using the following abbrevi-

ations: D = depth (m); T = temperature (°C); S = salinity; OM = organic matter in the sediment (% of organic carbon) and DO = dissolved oxygen (ml/L). Type material is deposited in the National Museum of Natural History, Smithsonian Institution (USNM), Washington, D. C., Los Angeles County Museum of Natural History (LACMNH-AHF), California, U.S.A., Instituto de Ciencias del Mar y Limnología de la Universidad Nacional Autónoma de México (CP-ICML-UNAM), Mexico City, Colegio de la Frontera Sur (QNR.IN.021. 0497), Quintana Roo, Mexico, The Australian Museum (AusM), Sydney, the British Museum of Natural History (BMNH), London, Museo Nacional de Ciencias Naturales de Madrid, Universidad Autónoma de Madrid (MNCNM), Spain, Muséum National d'Histoire Naturelle (MNHN), Paris, Zoologisches Institut und Museum, Universität Hamburg (ZMH), Hamburg.

Genus *Typosyllis* Langerhans, 1879

Type species.—*Syllis krohnii* Ehlers, 1864.

Diagnosis.—Body cylindrical, with numerous segments. Prostomium with three articled antennae, two pairs of eyes and usually two additional anterior ocular spots. Palps separated along almost entire length but united basally in dorsal view. Nuchal organs as paired, ciliated lobes between prostomium and peristomium. Two pairs of articled tentacular cirri. Ventral cirri in all parapodia. Chaetae usually compound falcigers with unidentate or bidentate blades, with simple chaetae variably present in posterior chaetigers. Aciculae of different shapes and number (up to six per parapodium anteriorly, reducing in number posteriorly). Pharynx with smooth margin, and subterminal middorsal tooth and 10 small terminal soft papillae.

Remarks.—*Syllis,* one of the most diverse genera in the family, was originally described by Savigny (in Lamarck, 1818). Langerhans (1879) split the genus into four subgenera: *Haplosyllis* with only simple chaetae, *Typosyllis* Langerhans with compound falcigers, *Syllis* Langerhans with simple chaetae and compound falcigers and *Ehlersia* Quatrefages with spinigerous chaetae and falcigers. However, this division has been used more for practical purposes than to resolve taxonomic problems. Recently, Uebelacker (1984), San Martín (1992), Kudenov & Harris (1995) and Licher (1999) have considered using *Syllis* as the genus. In this study, we prefer to recognize four separate but closely related genera for matters of practicality.

Typosyllis papillosus, new species
Figs. 2–5

Syllis (*Typosyllis*) sp. G.—Uebelacker, 1984:30.131 fig. 30–124.

Material examined.—15 specimens: Sep 1988, sta. 4(1); sta. 13(1); Mar 1989, sta. 13(1); Sep–Oct 1989, sta 4(2), 18(1), 19(1); Mar 1990, sta. 16(3); Oct–Nov 1990 sta. 16(1), 12(1), 3(1), 17(1).

Additional material examined.—Port Aransas Texas, 26°10′N, 96°24′W, USNM (75234).

Type locality.—Holotype: Sep 27, 1988, sta. 4. USNM (1006833) Gulf of Mexico, 19°15′N, 92°28′W. Paratypes: Sta. 3, 19°18′N, 92°28′W, Nov. 5, 1990 (1) MNCNM 16.01/9050. Sta. 12, 19°33′N, 91°54′W, Nov. 11, 1990 (1) AusM W28481. Sta. 13, 19°42′N, 92°00′W, Sep. 24, 1988 (1) MNHN 1242, Mar. 11, 1989 (2) mounted in gold for SEM, CP-ICMYL-UNAM POP37-001. Sta. 16, 20°03′N, 92°09′W, Nov. 3, 1990 (1) BMNH 2002.898, (1) QNR. SYLL-45, (1) CP-ICMYL-UNAM POP37-001. Sta. 17 18°59.1′N, 92°51.6′W, Nov. 7, 1990 (1) ZMH: SMF 13000. STA. 18, 19°20′N, 91°39′W, OCT. 10, 1989, (1) LACM-AHF POLY 2100. Sta. 19, 20°57.9′N, 91°03.9′W Sep. 30 1989, (1) USNM 1006834. Port Aransas, Texas, 26°10′N, 96°24′W, 91 m, USNM (75234)

Description.—Holotype incomplete (10 mm by 1.3 mm) with 48 chaetigers. Para-

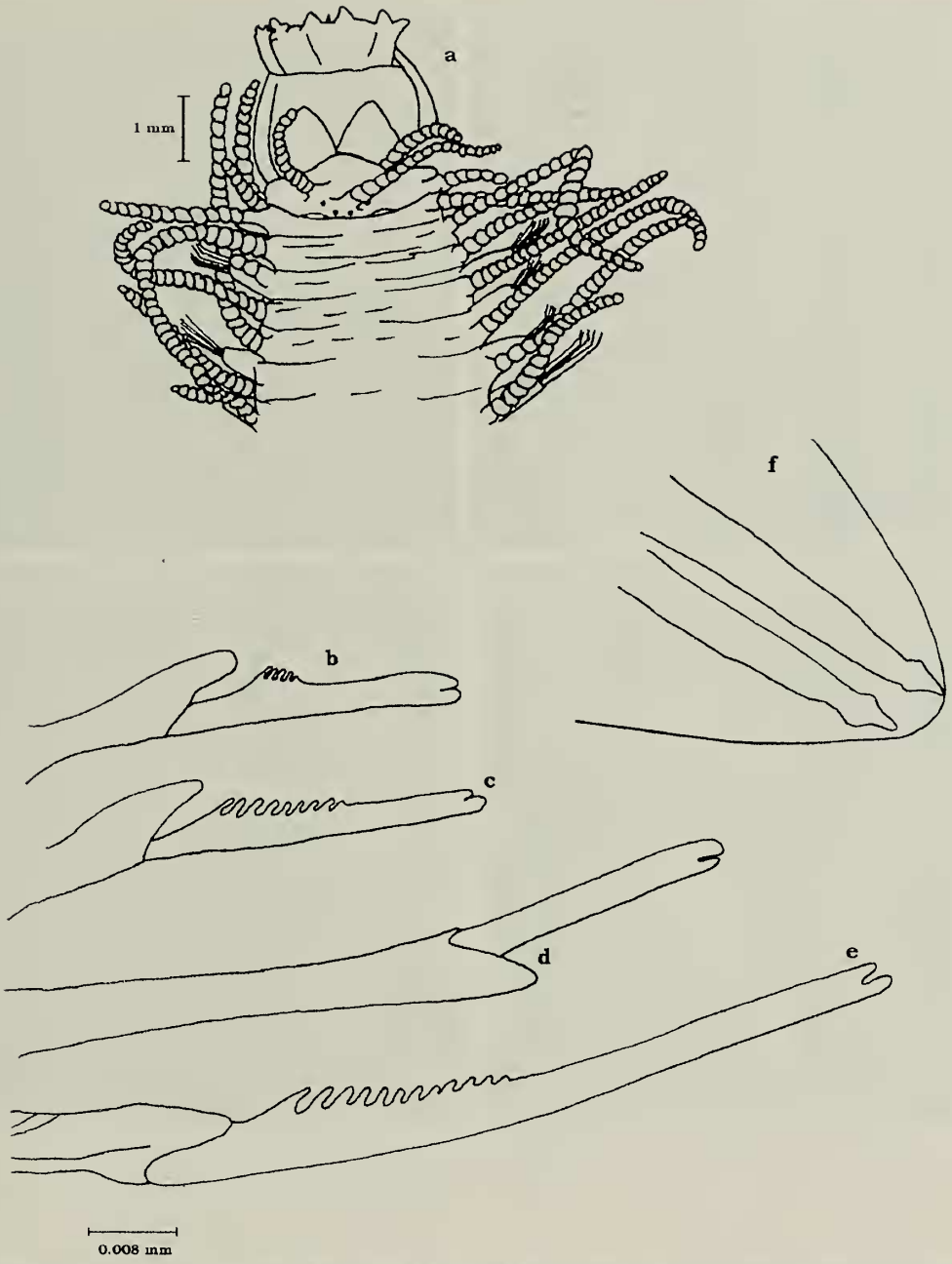

Fig. 2. *Typosyllis papillosus,* new species. a) Anterior region, dorsal view; b, c) Inferior falcigers; d) Falciger with smooth margin from median region of body; e) Superior falciger in median region; f) Aciculae from posterior region.

types and Uebelacker specimen posteriorly incomplete (3–18 mm by 0.5–2.2 mm) with 19 to 78 chaetigers. Body long, anteriorly broad (Fig. 3A, B) and posteriorly slender, tegument thick. Prostomium triangular, wider than long. Two pairs of small eyes in trapezoidal arrangement; anterior pair at base of median antenna, pos-

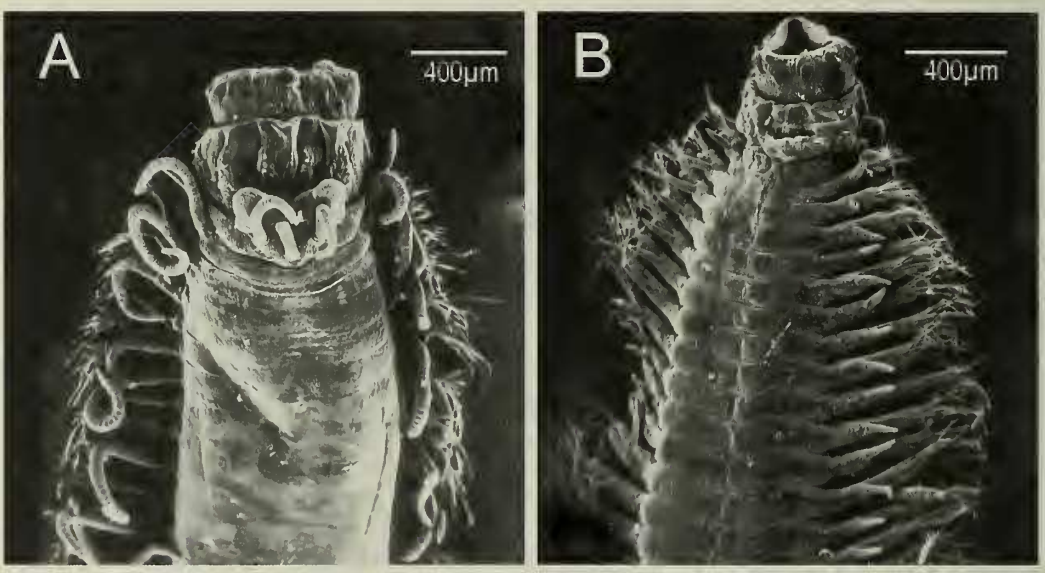

Fig. 3. *Typosyllis papillosus,* new species. Scanning electron microscopy (SEM). A) Anterior region, dorsal view; B) Anterior region, ventral view.

terior pair at posterior border of prostomium. Median antenna with 24–33 articles (31 in holotype), inserted at posterior margin of prostomium; lateral antennae with 19–25 articles (19 in holotype) medially inserted on prostomium. Palps triangular, basally fused (Fig. 4A). Nuchal organs small, visible between prostomium and peristomium (Fig. 2a). Dorsal tentacular cirri with 26 articles; ventral tentacular cirri with 21 articles. Pharynx long with 10 globular terminal papillae (Fig. 4A, B) and subterminal conical thick tooth middorsally. As an unusual characteristic, proximal part of proboscis subdivided into 10 longitudinal regions, each of which with a single row of five or six rounded to triangular papillae (Fig. 4A–D). Proventricle longer than pharynx, extending from chaetiger 9 to 19, with 44 rows of transverse muscle bands. Dorsal cirri long, alternating in length, with 28 to 42 articles; ventral cirri slender, cirriform and slightly shorter than parapodial lobes (Fig. 3B). Parapodia elongate, conical, with three kinds of chaetae: two superior composite heterogomph falcigers with long blades and coarse basal serrations (Fig. 2e); four median composite falcigers with shorter blades; two with short, uniform and dense serration (Fig. 2b), and two with less dense serration (Figs. 2c, 5A); four inferior composite falcigers without serration (Fig. 2d). All composite chaetae have blades with bidentate tips, with distal tooth larger than subdistal (Fig. 5B–D), and with serration (when present) only proximally. Two kinds of simple chaetae in posterior segments; unidentate and indistinctly serrated ones in superior position, and bidentate smooth ones in inferior position. Aciculae broad, straight, subterminally expanded with acute tips (Fig. 2f); number changing along body region with three aciculae on chaetigers 1 to 18, and two after chaetiger 19. Blade width-length ratios are 1:3 on anterior segments, 1:2.5 on median segments, and 1:3 on posterior segments. Blade length for inferior falcigers is ca. 40 µm. Posterior end unknown.

Remarks.—The compound falcigers of *T. papillosus* are similar to those in *Exogonella longipedata* Hartman (1965:77, pl. 10, fig. b), a species described from 400 m depth off New England. *Typosyllis,* however, differs from *Exogonella* in that the lat-

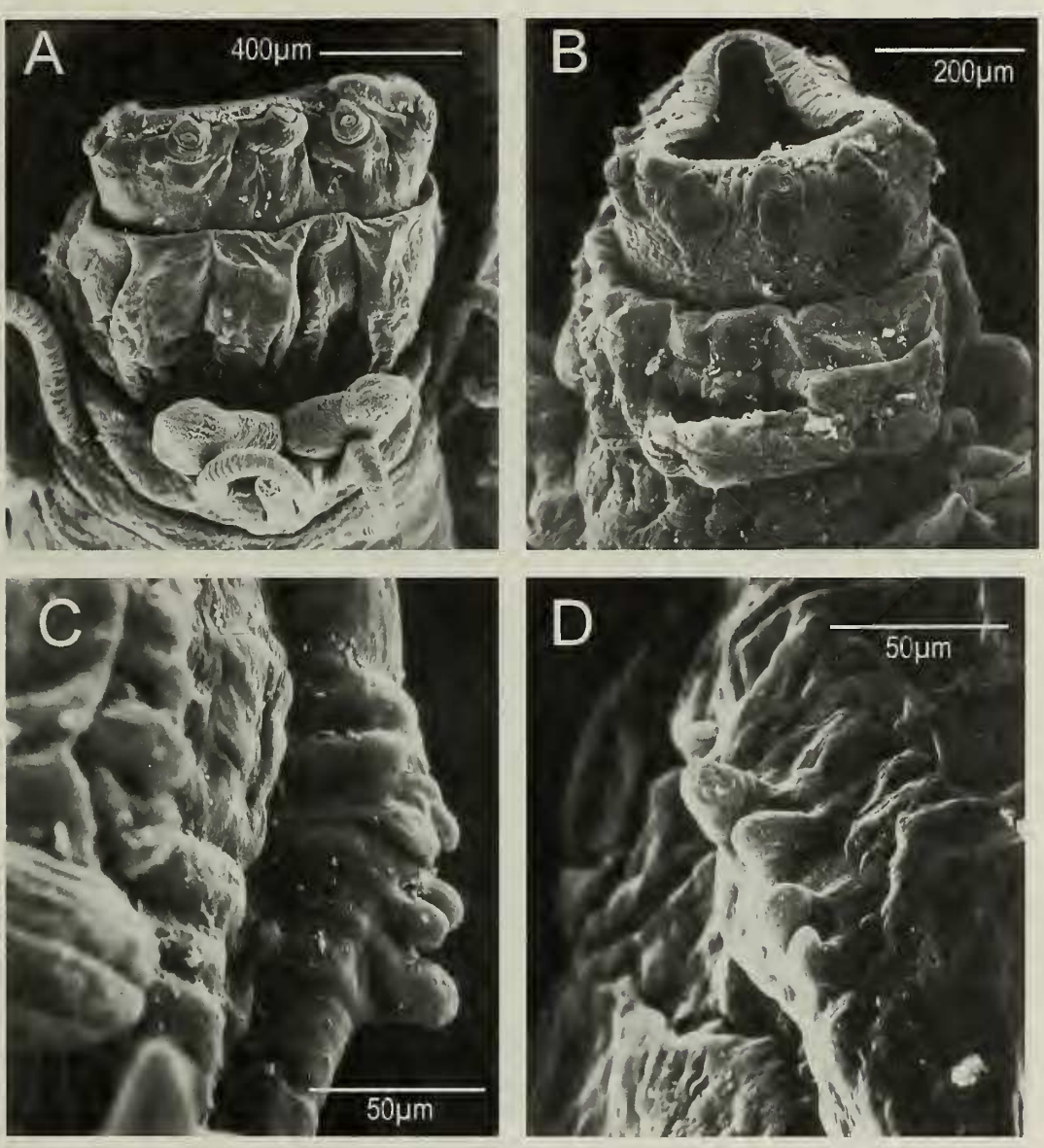

Fig. 4. *Typosyllis papillosus,* new species. SEM. A) Pharynx, dorsal view; B) Pharynx, ventral view; C) Right lateral group of papillae; D) Left lateral group of papillae.

ter lacks tentacular cirri and antennae. Likewise, compound falcigers are slightly similar to *T. typica* (Moore, 1909), but in that species the superior composite heterogomph falcigers have shorter blades than those in *T. papillosus* and a lighter pectination along the blade.

Typosyllis papillosus is distinguished from other related species by the presence of two superior composite heterogomph falcigers with long blades and coarse basal serrations and two median composite falcigers with less dense serration and also the ten groups of rounded papillae distributed along the pharyngeal basal area. This last character resembles the arrangement of paragnaths or papillae in nereidids, although in *T. papillosus* these papillae are distributed along the

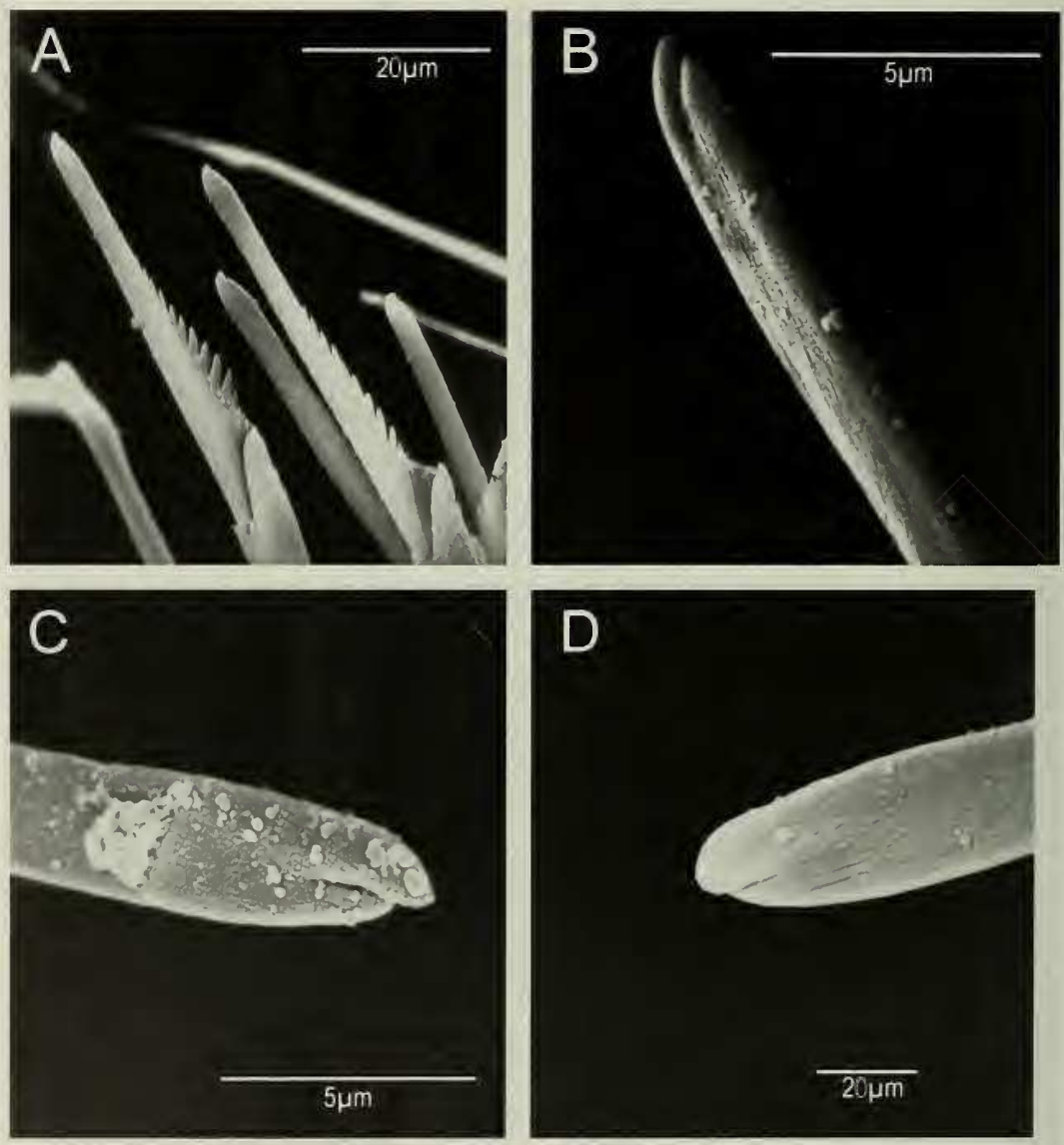

Fig. 5. *Typosyllis papillosus*, new species. SEM. Scanning electron microscopy. A) Inferior falcigers; B, C) Distal region of blade of inferior falciger; D) Distal region of blade of smooth falciger.

oral area instead of in the maxillary area, as is common in the Nereididae.

Glasby (1993) considered syllids to be part of a monophyletic group which includes the Nautiliniellidae and the Pilargidae, while Fauchald & Rouse (1997) considered it a sister group of a large clade, including nereidiforms, phyllodociforms and glyceriforms. More recently, Pleijel & Dahlgren (1998) presented evidence for their affinity with both nereidids and spintherids. However, the phylogenetic position of the Syllidae is still considered uncertain (Glasby et al. 2000).

Occurrence.—*Typosyllis papillosus* was collected in mud and sandy mud. D = 29–127; T = 20–27; S = 36.3–37.1; OM = 1.18–1.3; DO = 3.46–3.56.

Etymology.—The specific name refers to the unique papillae found in the proboscis.

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